CLAIMS

1. A method of treating a tumor in a subject, which comprises administering to said subject an effective amount of at least one agent that decreases the $[GSH]^2/[GSSG]$ ratio in the malignant cells of said tumor, wherein said at least one agent is administered continuously to said patient for a period of time within the range of from about 15 to about 75 hours.

2. A method according to claim 1 wherein said agent or precursor thereof is selected from the group consisting of β-alanylcysteamine, arsenic trioxide, ascorbic acid, buthionine sulfoximine, camptothecin, capsaicin, carmustine, daunorubicin, diamide, diethyl maleate, disulfiram, dopamine, doxorubicin, duroquinone, epothilone A, epothilone B, erbstatin, ethacrynic acid, etoposide, gemcitabine, hydrogen peroxide, an isoflavone, α-lipoic acid, mifepristone, oxidized low density lipoprotein (ox-LDL), a polyunsaturated fatty acid (PUFA), propargylglycine, an unsubstituted or partially substituted quinone, N-(4-hydroxyphenyl) retinamide, retinoic acid, staurosporine, a ubiquinone, an α,β-unsaturated aldehyde, and a phenol.

3. A method according to claim 2 wherein said isoflavone is selected from the group consisting of catechin, daidzein, dicumarol, (-)epicatechin, flavopiridol, genistein, β-lapachone, myricetin and rotenone ; said unsubstituted or partially substituted quinone is selected from the group consisting of anthraquinone, benzoquinone, 2-methylbenzoquinone, 2,6-dimethyl-benzoquinone, 2,5-dimethyl-benzoquinone, 2,3,5-trimethyl-benzoquinone, γ–tocopherolquinone and δ-tocopherolquinone; said α,β-unsaturated aldehyde is selected from the group consisting of cinnamaldehyde and a 4-hydroxy-C_5-C_9-alkenal selected from the group consisting of 4-hydroxy-C_5-C_9-pentenal, 4-hydroxy-C_5-C_9-hexenal, 4-hydroxy-C_5-C_9-heptenal, and 4-hydroxy-C_5-C_9-nonenal; said phenol is selected from the group consisting of curcumin, (-) epigallocatechin-3-gallate, resveratrol, γ-

tocopherol, δ-tocopherol, yakuchinone A, and yakuchinone B; and said ubiquinone is coenzyme Q_{10}.

4. A method according to claim 1 wherein said at least one agent is administered together with a standard chemotherapeutic drug.

5. A method of treating a tumor in a subject, which comprises administering to said subject an effective amount of a synergistic combination of at least two agents that decrease the $[GSH]^2/[GSSG]$ ratio in the malignant cells of said tumor, wherein said agents are selected from the classes consisting of:

(i) an agent that oxidizes GSH, or a precursor thereof;

(ii) an agent that forms an adduct or a conjugate with GSH, or a precursor thereof;

(iii) an agent that inhibits the GCS enzyme; and

(iv) an agent that inhibits the glutathione reductase (GR) enzyme,

6. A method according to claim 5 wherein said synergistic combination comprises at least one agent that oxidizes GSH, or a precursor thereof, and at least one agent that forms an adduct or conjugate with GSH, or a precursor thereof.

7. A method according to claim 6 wherein said at least one agent that oxidizes GSH or a precursor thereof is disulfiram, hydrogen peroxide, a precursor thereof selected from the group consisting of ascorbic acid and dopamine, α-lipoic acid, oxidized low density lipoproteins (ox-LDLs), and a quinone selected from the group consisting of duroquinone, an ubiquinone, and β-lapachone, and said at least one agent that forms an adduct or conjugate with GSH, or a precursor thereof, is selected from the group consisting of arsenic trioxide, diethylmaleate, ethacrynic acid, epothilones A and B, an α,β-unsaturated aldehyde, an unsubstituted or partially substituted quinone, an isoflavone, and a phenol.

8. A method according to claim 7 wherein said at least one agent that forms an adduct or conjugate with GSH, or a precursor thereof, is selected from the group consisting of an isoflavone, an unsubstituted or partially substituted quinone, an α,β-unsaturated aldehyde, and a phenol, wherein said isoflavone is selected from the group consisting of catechin, daidzein, dicumarol, (-)epicatechin, flavopiridol, genistein, β-lapachone, myricetin and rotenone ; said unsubstituted or partially substituted quinone is selected from the group consisting of anthraquinone, benzoquinone, 2-methylbenzoquinone, 2,6-dimethyl-benzoquinone, 2,5-dimethyl-benzoquinone, 2,3,5-trimethyl-benzoquinone, γ–tocopherolquinone and δ-tocopherolquinone; said α,β-unsaturated aldehyde is selected from the group consisting of cinnamaldehyde and a 4-hydroxy-C_5-C_9-alkenal selected from the group consisting of 4-hydroxy-C_5-C_9-pentenal, 4-hydroxy-C_5-C_9-hexenal, 4-hydroxy-C_5-C_9-heptenal, and 4-hydroxy-C_5-C_9-nonenal; and said phenol is selected from the group consisting of curcumin, (-) epigallocatechin-3-gallate, resveratrol, γ-tocopherol, δ-tocopherol, yakuchinone A, and yakuchinone B.

9. A method according to claim 7 wherein said synergistic combination comprises disulfiram and diethyl maleate or a quinone.

10. A method according to claim 5 wherein said synergistic combination comprises at least one agent that oxidizes GSH, or a precursor thereof, and at least one agent that inhibits the GCS enzyme.

11. A method according to claim 10 wherein said least one agent that oxidizes GSH or a precursor thereof is disulfiram, hydrogen peroxide, a precursor thereof selected from the group consisting of ascorbic acid and dopamine, α-lipoic acid, oxidized low density lipoproteins (ox-LDLs), and a quinone selected from the group consisting of duroquinone, an ubiquinone, and β-lapachone, and said at least one agent that inhibits the GCS enzyme is buthionine sulfoximine (BSO).

12. A method according to claim 5 wherein said synergistic combination comprises at least one agent that oxidizes GSH, or a precursor thereof, and at least one agent that inhibits the GR enzyme.

13. A method according to claim 12 wherein said least one agent that oxidizes GSH or a precursor thereof is disulfiram, hydrogen peroxide, a precursor thereof selected from the group consisting of ascorbic acid and dopamine, α-lipoic acid, oxidized low density lipoproteins (ox-LDLs), and a quinone selected from the group consisting of duroquinone, an ubiquinone, and β-lapachone, and said at least one agent that inhibits the GR enzyme is carmustine.

14. A method according to claim 5 wherein said synergistic combination comprises at least one agent that forms an adduct or conjugate with GSH, or a precursor thereof, and at least one agent that inhibits the GCS enzyme, with the exclusion of the combination of As_2O_3 with BSO.

15. A method according to claim 5 wherein said synergistic combination comprises at least one agent that forms an adduct or conjugate with GSH, or a precursor thereof, and at least one agent that inhibits the GR enzyme

16. A method according to claim 5 wherein said synergistic combination is administered continuously to said patient for a period of time within the range of from about 15 to about 75 hours.